

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

ENVIRONMENT TEXAS CITIZEN LOBBY,)
INC., and SIERRA CLUB,)
Plaintiffs,)
v.) Case No. 4:08-cv-00070
SHELL OIL COMPANY, DEER PARK)
REFINING LIMITED PARTNERSHIP, AND)
SHELL CHEMICAL LP.)
Defendants.)

)

CONSENT DECREE AND ORDER

Upon consideration of the Motion for Entry of Consent Decree and Order filed by the parties, it is hereby ORDERED, ADJUDGED AND DECREED as follows:

I. BACKGROUND

1. Environment Texas Citizen Lobby, Inc., and Sierra Club (collectively, "Plaintiffs") brought this suit against Shell Oil Company, Deer Park Refining Limited Partnership, and Shell Chemical LP (collectively, "Defendants" or "Shell Deer Park") under the federal Clean Air Act (the "CAA" or "the Act"), 42 U.S.C. § 7401, *et seq.* for alleged violations of the Act at Shell Deer Park's refinery and chemical plant in Deer Park, Texas ("Deer Park Site"). Defendants deny the Plaintiffs' allegations.

2. The parties recognize and the Court, by entering this Consent Decree and Order (the "Decree"), finds that this Decree has been negotiated by the parties in good faith; settlement

will avoid continued litigation between the parties; settlement of this matter is in the public interest and in accordance with the CAA, and entry of this Decree is fair and reasonable.

3. On the date this Decree was filed with the Court, the parties concurrently served a copy of this Decree on the United States Environmental Protection Agency and the United States Department of Justice, consistent with the requirements of 42 U.S.C. § 7604(c)(3).

II. JURISDICTION AND VENUE

4. Plaintiffs' Complaint states a claim upon which relief can be granted against Shell Deer Park under 42 U.S.C. § 7604. This Court has jurisdiction over the parties and subject matter of this Decree pursuant to 28 U.S.C. § 1331 and 42 U.S.C. § 7604. Venue is proper in this Court pursuant to 42 U.S.C. § 7604(c) and 28 U.S.C. §§ 1391(b) and (c).

III. APPLICABILITY

5. The provisions of this Decree shall apply to and be binding upon the parties and their successors and assigns. In the event Deer Park Refining Limited Partnership as owner of the refinery or Shell Chemical LP as owner of the chemical plant proposes to sell or transfer its legal or equitable interest in the Deer Park Site before the termination of this Decree, or if Shell Oil Company's or Shell Chemical LP's operational responsibilities for the Deer Park Site are transferred or assigned before the termination of this Decree, Defendants shall notify Plaintiffs of such proposed sale, transfer or assignment, shall advise the proposed purchaser, successor-in-interest, assignee or transferee of the existence of this Decree, and shall condition the sale, transfer or assignment on the purchaser's or successor-in-interest's agreement to comply with the terms hereof.

6. Definitions. For the purposes of this Decree, the following terms shall have the following meanings:

“Emission Limits” means: (a) the hourly and annual limits on the release of air pollutants set forth in air emission permits issued to Defendants by the Texas Commission on Environmental Quality (“TCEQ”), (b) any hourly and annual limits on the release of air pollutants set forth in any forthcoming permits issued to Defendants by the TCEQ that specifically address planned startup, shutdown and maintenance (“SSM”) events, and (c) for sources for which SSM permits have not been issued, the amount of emissions Shell Deer Park includes in any prior notice of planned SSM activity provided to TCEQ pursuant to TCEQ rules, if Shell Deer Park actually implements emissions minimization procedures during such startup, shutdown or maintenance activity.

“Emission Event” means any incident or occurrence that results in the release of unauthorized emissions into the atmosphere from the Deer Park Site in excess of the Emission Limits and for which a State of Texas Environmental Electronic Reporting System (“STEERS”) report is required by TCEQ rules in effect as of January 1, 2009, or in excess of opacity limits set forth in state and federal regulations applicable to stationary sources of air emissions at the Deer Park Site. For purposes of determining the occurrence or magnitude of an emission event, the determination shall be made on the same basis and manner of calculation that was in effect on January 1, 2009.

“Excess Emission” means the quantity of any unauthorized emissions released into the atmosphere from the Deer Park Site from an Emission Event, except that the following shall not be Excess Emissions:

- (i) emissions in excess of the Emission Limits that occur solely as part of a plant-wide shutdown or startup necessitated by a hurricane or other State-declared emergency if Shell Deer Park implements the Hurricane Startup and Shutdown

Plan described in paragraph 9(h), below, or other applicable emergency response plan;

(ii) emissions in excess of the Emission Limits that occur solely as a result of an external electrical grid failure.

“External electrical grid failure” means a loss or interruption of Shell Deer Park’s dual electric power feed to the Deer Park Site from the grid power supplier (i) from causes beyond the control of Shell Deer Park and (ii) that results in a major interruption in operations at the Deer Park Site. Shell Deer Park shall have the burden of establishing the occurrence of an external electrical grid failure. An interruption in power may include a decline in frequency or voltage of the power on the grid that falls below Texas requirements for power providers.

“Opacity” means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background, as set forth at 40 C.F.R. Part 60.2.

“Total Pollutants” means the aggregate total of all air contaminants for which Excess Emissions were reported on Shell Deer Park’s STEERS reports.

“Total VOCs” means all volatile organic compounds as defined in 30 Tex. Admin. Code § 101.1 except benzene and 1,3-butadiene.

“Year” means the twelve-month period beginning on the first day of the first calendar quarter (or the yearly recurrence of such date) following entry of this Decree.

IV. COMPLIANCE

7. Reporting Requirements:

(a) On an annual basis, beginning with the first Year after entry of this Decree, Defendants shall submit to Plaintiffs a summary that contains, at a minimum, the following

information with respect to Emission Events occurring at the Deer Park Site during the previous Year: the total number of Emission Events; the common name of each process unit or area and each facility that incurred one or more Emission Events; the total Excess Emissions of each air contaminant reported to have been released, in pounds; the total of all Excess Emissions combined, in pounds; the total number of days on which each stationary source of air emissions at the Deer Park Site exceeded an applicable opacity limit set forth in state or federal regulations; the total emissions of each pollutant that Defendants contend were attributable to plant-wide emergency startup or shutdown events or to external electrical grid failures; the amount of any stipulated penalties payable pursuant to paragraph 8(d), below, and the calculations used to compute such stipulated penalties. The information required by this subparagraph shall be submitted to Plaintiffs within 90 days after the end of each Year.

(b) Twice annually, beginning the second quarter after entry of this Decree, Shell Deer Park shall provide a written report to Plaintiffs describing its progress in implementing the measures described in paragraphs 9 and 10, below. Shell Deer Park's obligation under this subparagraph (b) shall terminate after it has reported completion of the measures and satisfied the reporting requirements described in paragraphs 9 and 10.

8. Reduction of Excess Emissions:

(a) Total Excess Emissions during the first Year following entry of this Decree shall not exceed the following limits for each of the following pollutants:

Pollutant	Amount (lbs.)
Total Pollutants	300,000
SO ₂	180,000
NOx	21,000
Total VOCs	97,500
CO	63,000
H ₂ S	2,250
Benzene	7,500
1,3-butadiene	3,750

(b) Total Excess Emissions during the second Year following entry of this Decree shall not exceed the following limits for each of the following pollutants:

Pollutant	Amount (lbs.)
Total Pollutants	200,000
SO ₂	120,000
NOx	14,000
Total VOCs	65,000
CO	42,000
H ₂ S	1,500
Benzene	5,000
1,3-butadiene	2,500

(c) Emissions of pollutants from the Deer Park Site during the third and each succeeding Year following entry of this Decree shall not exceed the Emission Limits; provided, that the provisions of this paragraph 8 shall expire upon Shell Deer Park's achievement, for each of the pollutants, of twenty-four consecutive months during which, for each of the two twelve-month periods comprising the twenty-four month total, Shell Deer Park's Excess Emissions do not exceed the following annual limits:

Pollutant	Amount (lbs.)
Total Pollutants	135,000
SO ₂	81,000
NOx	9,450
Total VOCs	43,875
CO	28,350
H ₂ S	1,300
Benzene	3,375
1,3-butadiene	1,387

(d) Stipulated Penalties:

(i) *For SO₂, NOx, total VOCs, CO, H₂S and Total Pollutants:* Shell Deer

Park shall pay a stipulated penalty of \$1 for each pound of pollutants emitted in excess of the thresholds set forth in the tables in subparagraphs (a), (b) and (c) of this paragraph, up to 50,000 total excess pounds. For each additional pound of any pollutant emitted above 50,000 total excess pounds, Shell Deer Park shall pay a stipulated penalty of \$5 per pound.

(ii) *For benzene and 1,3-butadiene:* Shell Deer Park shall pay a stipulated penalty of \$50 for each pound of each pollutant emitted in excess of the thresholds set forth in the tables in subparagraphs (a), (b) and (c) of this paragraph.

(iii) *For opacity:* Shell Deer Park shall pay a stipulated penalty of \$2,500 for each day of violation of an opacity limit set forth in state or federal regulations applicable to stationary sources of air emissions at the Deer Park Site.

9. Physical and Operational Upgrades to the Deer Park Site:

(a) Coker Unit Wet Gas Compressor: By no later than December 31, 2009, Shell Deer Park shall complete installation and begin operation of a Triconex anti-surge control system on the Coker Unit wet gas compressor at the Deer Park Refinery. By no later than September 1,

2010, Shell Deer Park shall have completed all necessary preparations for installing and beginning operation of a new or upgraded lube/seal oil system and a new electromechanical excitor for the Coker Unit wet gas compressor at the next occurring turnaround of the affected unit; provided, that such equipment shall be installed and put into operation no later than December 31, 2012. The Coker Unit Wet Gas Compressor work shall be performed in accordance with the scope of work attached as Exhibit A to this Decree.

(b) Flare Minimization: By no later than eighteen months after entry of this Decree, Defendants shall, for each flare at the Deer Park Site, develop and implement a flare management and minimization plan comparable to the plan that is in effect at Shell's Martinez, California, Refinery. The plan shall, at a minimum:

- (i) Incorporate the flare mapping developed in compliance with paragraph 9(e) of this Decree;
- (ii) Identify methods used to monitor the flow rate to each flare;
- (iii) Include a description of the manufacturer's specifications, including but not limited to make, model, type, range, precision, accuracy, calibration, maintenance, and quality assurance procedures for existing or proposed flow metering devices;
- (iv) Include a description of equipment, processes and procedures installed or implemented within the last five years to reduce flaring. The description shall specify the year of installation for such equipment, processes and procedures;
- (v) Specify planned flaring reduction measures (including, among other things, hardware and process revisions, procedural revisions, preventive measures, and economic justification for additional gas recovery capacity) and when such measures will be implemented to address the following:

(a) Flaring that has occurred or may reasonably be expected to occur during planned major maintenance activities, including startup and shutdown.

The evaluation shall include a review of flaring that has occurred during these activities during the past five years, and shall consider the feasibility of performing these activities without flaring.

(b) Flaring that may reasonably be expected to occur due to issues of gas quantity and quality. The evaluation shall include an audit of the vent gas recovery capacity of each flare system, the storage capacity available for excess vent gases, and the scrubbing capacity available for vent gases including any limitations associated with scrubbing vent gases for use as a fuel, and shall consider the feasibility of reducing flaring through the recovery, treatment and use of the gas or other means.

(c) Flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation shall consider the adequacy of existing maintenance schedules and protocols for such equipment.

When the Flare Minimization Plan is developed and implemented, Shell shall so certify to Plaintiffs in writing and shall provide Plaintiffs with a copy of the Plan (Shell Deer Park may exclude confidential business information from the copy provided to Plaintiffs). Shell shall, when appropriate, initiate procedures to amend applicable permits to reflect any hourly or annual emission reductions.

(c) Steam Supply: If, during the life of this Decree, three or more Emission Events attributable in whole or in part to disruptions in supply from Calpine's Deer Park Energy Center

L.P. cogeneration steam supply for the Shell Deer Park Site (i) occur within a 36-month period, and (ii) result in emissions of more than 2,000 pounds per event, Shell Deer Park shall develop and implement a plan to permanently resolve such steam supply problems. Shell Deer Park shall provide a description of such plan to Plaintiffs in writing not more than 90 days following the occurrence of the third such steam supply-related Emission Event.

(d) Reduction of Tank Emissions: Not later than three years after entry of this Decree, Shell Deer Park shall equip each slotted guide pole opening on a Group 1 external floating roof storage vessel (as defined by 40 C.F.R. 63.641 as of the date of entry) subject to the National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries (40 C.F.R. Part 63, Subpart CC) with a slotted guide pole control device configuration that complies with the requirements of 40 C.F.R. 63.1063(a)(2)(viii), 40 CFR 63.1064, or the EPA Storage Tank Emissions Reduction Partnership Program. When this work is completed, Shell Deer Park shall so certify in writing to Plaintiffs.

(e) Flare Mapping: By no later than eighteen months after entry of this Decree, Shell shall certify to Plaintiffs that it has, for each flare at the Deer Park Site, developed a flare map that shall, among other things:

- (i) Establish baseline flow rates and composition of routine flaring using all necessary flow measurements, process knowledge, and analytical tools;
- (ii) Identify sources of hydrocarbon flows to the flare systems, utilizing analyses of unit mechanical drawings, process knowledge, or physical inspection to identify connections to flare headers and all significant sources of routine flows. Each time a new connection is made to the flare header, Shell Deer Park shall revise flare diagrams and lists within 90 days;

- (iii) Include full and accurate descriptions, including locations, of all associated monitoring and control equipment;
- (iv) Include process flow diagrams depicting all pipelines, process units, flare gas recovery systems, water seals, surge drums and knockout pots, compressors, and other equipment that vent to the flares. At a minimum, this shall include full and accurate as-built dimensions and design capacities of the flare gas recovery systems, compressors, water seals, surge drums and knockout pots.

Shell shall install flow meters as necessary to accomplish the foregoing.

(f) Flare Efficiency: In the reports provided to Plaintiffs pursuant to paragraph 7(b) of this Decree, Shell Deer Park shall describe its implementation of any U.S. Environmental Protection Agency (“EPA”)-prescribed enhanced flare efficiency equipment and operating procedures at Shell Deer Park.

(g) Olefins Unit Ground Flare:

(i) After completing the requirements of sub-paragraphs (ii) and (iii) below and until all other provisions of this decree are satisfied, at all times that Shell Deer Park operates the Olefins Unit ground flare, Shell Deer Park shall maintain operating parameters of the Olefins Unit ground flare so as to achieve a destruction removal efficiency of not less than 98.0 percent, subject to exceptions allowed by State and Federal law for operation of flares. Shell Deer Park shall maintain, on a rolling two-year basis, records of such identified operating parameters, and shall disclose in the reports provided to Plaintiffs pursuant to paragraph 7(b) of this Decree any failures to maintain such operating parameters or to achieve 98.0 percent destruction removal efficiency;

(ii) Not later than six months after entry of this Decree, Shell shall conduct and complete such monitoring and testing as necessary to determine the actual destruction removal efficiency of the Olefins Unit ground flare under representative operating conditions, and to identify the operating parameters or equipment upgrades necessary to maintain 98.0 percent destruction removal efficiency;

(iii) If corrective actions are necessary to achieve 98.0 percent or greater destruction removal efficiency, Shell Deer Park shall submit to U.S. EPA a plan and schedule for achieving the target efficiency.

(h) Hurricane Preparedness: Shell Deer Park shall implement its existing Hurricane Shutdown and Startup Plan or other applicable plan when a plant-wide shutdown is necessitated by hurricanes or other State-declared emergencies. In addition, Shell Deer Park shall evaluate emissions during such plant-wide shutdowns and startups for the purpose of identifying and implementing additional measures and modifications to such plans to further minimize air emissions while maximizing worker safety.

(i) Emission Event Tracking and Prevention Systems: Shell Deer Park shall develop and implement systems to:

(i) track Emission Events according to underlying cause and location within Shell Deer Park;

(ii) track identified “near-miss” events with the potential to result in serious consequences according to underlying cause and location within Shell Deer Park;

(iii) develop strategies for prevention of Emission Events and such “near-miss” events;

(iv) set targets for reductions in occurrence of Emission Events.

Shell Deer Park shall include in the reports provided to Plaintiffs pursuant to paragraph 7(b) of this Decree a description of the annual targets established under sub-paragraph (iv), above, for the preceding year and the corresponding numbers of actual Emission Events and of such “near-miss” events occurring during the preceding year.

(j) External Electrical Grid Failures: Based on experience from external electrical grid failures, Shell Deer Park shall identify and implement any operational procedures and any equipment upgrades that are reasonable and necessary to minimize the release of air contaminants during Emission Events caused by external electrical grid failures. Such measures may include procedures to immediately cut feed rates when a compressor “trips” and measures to keep emissions-critical equipment operating. After any Emission Event caused by an external electrical grid failure during the life of this Decree, Shell Deer Park shall reassess its preparations for and response to such event. Shell Deer Park shall describe any such operational procedures or physical upgrades, and any such reassessments, in the reports provided to Plaintiffs pursuant to paragraph 7(b) of this Decree.

10. Enhanced Monitoring of Air Emissions:

(a) Fence-line Monitoring Program: Shell Deer Park shall simultaneously provide Plaintiffs with a copy of all reports it provides to EPA pursuant to any EPA-prescribed fence-line monitoring program undertaken at the Deer Park Site, except that Shell Deer Park may exclude confidential business information from the copy provided to Plaintiffs. Shell Deer Park shall not assert that the results of monitoring at the fence-line are confidential business information.

(b) Infrared Scanning for Leak Detection: Commencing no later than 90 days after entry of this Decree, Shell Deer Park shall implement an infrared scanning program within the refinery and chemical plant at the Deer Park Site. The scanning program will prioritize scanning in areas

(i) at potentially higher risk for leaks or for otherwise unmonitored emissions, such as tanks, and
(ii) more likely to contain benzene or 1,3-butadiene. Shell Deer Park shall provide a written description of the plan to Plaintiffs and U.S. EPA not later than 90 days after entry of this Decree.

11. Stipulated Penalties: For any failure to comply with a deadline set forth in paragraphs 9 or 10, Shell Deer Park shall pay a stipulated penalty of \$5,000 per month (or partial month) of delay, which amount shall be doubled to \$10,000 per month (or partial month) beginning with the fourth consecutive month of delay. Any stipulated penalties under this paragraph shall be paid within 30 days of accrual. Stipulated penalties under this paragraph shall not apply to the deadline for revising flare maps in paragraph 9(e)(ii). If Shell Deer Park operates the Olefins Unit ground flare pursuant to EPA-prescribed enhanced flare efficiency equipment and operating procedures or, in the absence of such an EPA-prescribed program, maintains and operates the ground flare system configured to maintain 98 percent destruction efficiency in accordance with good air pollution control practice, stipulated penalties under this paragraph shall not apply to failures to maintain the operating parameters described in paragraph 9(g)(i).

12. Payment of stipulated penalties under paragraphs 8 or 11 shall constitute civil penalties under the Federal Clean Air Act. Stipulated penalties under paragraph 8 shall be due automatically and without notice. Stipulated penalty payments under paragraph 8 shall be payable annually, and shall be paid not later than 90 days after the end of each Year.

13. Any payment under paragraphs 8 or 11 shall neither waive Shell Deer Park's duty to meet its obligations under this Decree nor preclude the Plaintiffs from commencing an action to compel Shell Deer Park's compliance with the terms and conditions of this Decree.

V. FORCE MAJEURE

15. Shell Deer Park shall take all necessary measures to avoid delays in compliance with this Decree. "Force Majeure" for the purposes of this Decree is defined as an event arising from causes beyond the control of Shell Deer Park or the control of any entity controlled by Shell Deer Park, including its consultants and contractors, which could not have been foreseen and prevented by the exercise of reasonable diligence, which delays or prevents the performance of any obligation under paragraphs 9 or 10 of this Decree. Unanticipated or increased costs, or changed financial circumstances, are not Force Majeure events.

17. If any event occurs that causes or may cause delay in the completion of any requirement of paragraphs 9 or 10 of this Decree, Shell Deer Park shall so notify Plaintiffs in writing within 20 working days of the event or of the date Shell Deer Park first became aware or reasonably should have become aware of the event. The notice shall describe the bases for Shell Deer Park's contention that it experienced a Force Majeure event, the causes of the event, the measures taken to prevent it, and the anticipated length of time the delay may persist. Failure to so notify shall constitute a waiver of the claim of Force Majeure as to the event in question.

18. If Plaintiffs agree that the delay has been or will be caused by circumstances beyond Shell Deer Park's control and that Shell Deer Park could not have foreseen and prevented such delay by the exercise of reasonable diligence, the parties shall stipulate to an extension of the timeframe(s) affected by the delay. Shell Deer Park shall not be liable for stipulated penalties for such period of delay. If Plaintiffs do not agree with Shell Deer Park's claim of Force Majeure, or if the parties cannot agree on a reasonable extension of time, either party may submit the matter to the Court for resolution. Shell Deer Park shall have the burden of

proving that a delay or noncompliance is or was caused by a Force Majeure event, and of proving the duration of any such delay or noncompliance.

VI. PENALTY

19. Within 30 days of the Court's entry of this Decree, Shell Deer Park shall pay the sum of \$5.8 million (the "Payment"). This Payment shall constitute civil penalties under 42 U.S.C. § 7604(a) for the alleged violations that are the subject of this suit. The Payment shall be disbursed to the following groups in the following amounts to fund environmental mitigation, research, health, or education projects relating to air quality and public health in Harris County:

- (i) Air Emission Reduction Credit Organization: \$3,600,000, for disbursal to school districts in the Houston-Galveston non-attainment area to retrofit or replace older diesel buses with alternative fueled and clean diesel buses, with priority given to projects in eastern Harris County;
- (ii) Houston Advanced Research Center: \$2,000,000, to fund the East Harris County Solar Energy Pilot Program, a project to install and test commercially available solar energy systems on public buildings;
- (iii) Galveston-Houston Association for Smog Prevention: \$200,000, to fund an interactive program to educate elementary- and middle-school students about air pollution.

Project descriptions are attached as Exhibit B to this Decree.

20. Each recipient of funds pursuant to paragraphs 19 or 21 of this Decree shall agree, as a condition of receiving such funds, to provide the parties with a report on the first anniversary of receiving the funds and on each anniversary thereafter until the funds are expended, certifying that the funds were used in the manner proposed. The parties reserve their right to seek an order

directing the return of funds from any recipient that fails to provide such certification. In the event such funds are returned, the returned funds shall be disbursed to the other entities or projects identified in paragraph 19, as agreed upon by the parties, or to other entities or projects concerning air quality or public health in Harris County, as agreed upon by the parties.

21. Payments of any stipulated penalties pursuant to this Decree, up to a total of \$100,000, shall be paid to the project described in paragraph 19(i). Payments of any additional stipulated penalties shall be made in accordance with 42 U.S.C. § 7604(g)(1).

22. The Payment and any stipulated penalties shall not be tax deductible by Defendants. Any public statement made by Defendants in any press release, in any oral or written material promoting the Defendants' environmental or charitable practices or record, or in Defendants' Annual Reports, that makes reference to Defendants' funding of the projects described in paragraph 19 shall include the following language: "Funding of these projects was made pursuant to the settlement of a Clean Air Act enforcement suit brought by Environment Texas and the Sierra Club."

VII. RETENTION OF JURISDICTION

23. The Court will retain jurisdiction of this matter for the purposes of implementing and enforcing the terms and conditions of this Decree and adjudicating all disputes between the Parties that may arise under the provisions of this Decree until the Decree terminates in accordance with Part X, below.

VIII. COSTS OF LITIGATION

24. Pursuant to 42 U.S.C. § 7604(d), within 30 days after the Court's entry of this Decree, Shell Deer Park shall pay \$850,000 for costs of litigation (including reasonable attorney

and expert witness fees) to Plaintiffs' counsel, by company check payable to "Environment Texas and Sierra Club and their attorneys Hilder & Associates PC."

IX. GENERAL PROVISIONS

25. This Decree constitutes a full settlement of, and shall resolve all civil liability of Shell Deer Park for, civil penalties and injunctive relief pursuant to the CAA for the violations specifically alleged in the Complaint and such other violations of the same regulatory provisions occurring from the date of the Complaint to the date of filing of this Decree.

26. Shell Deer Park shall not assert any claim of confidentiality for any documents or information it is required to report to Plaintiffs or government agencies pursuant to this Decree. Notification to Plaintiffs or to Shell Deer Park shall be deemed submitted on the date it is postmarked. All correspondence concerning this Decree and all documents that are submitted pursuant to this Decree shall be addressed as follows:

As to Plaintiffs:

Joshua R. Kratka
National Environmental Law Center
44 Winter Street, 4th Floor
Boston, Massachusetts 02108

As to Shell Deer Park:

Arnoldo Medina
Shell Legal US
One Shell Plaza, OSP 4860
910 Louisiana Street
Houston, Texas 77002

27. There shall be no modification of this Decree without agreement among all parties to the Decree and written approval by the Court, or by Order of the Court.

28. The effective date of this Decree shall be the date of its entry.

X. TERMINATION

29. This Consent Decree shall be subject to termination upon motion by Plaintiffs or Shell Deer Park, after Shell Deer Park satisfies all requirements of this Consent Decree. At such time as Shell Deer Park believes that it has satisfied the requirements of the Consent Decree it shall so certify in writing to Plaintiffs, and unless Plaintiffs object in writing with specific reasons within 45 days of receipt of the certification, the Court shall order that this Consent Decree be terminated on Shell Deer Park's motion. If Plaintiffs object to Shell Deer Park's certification, the parties shall attempt to resolve the dispute. If the parties cannot resolve the dispute, then the matter shall be submitted to the Court for resolution. In such case, Shell Deer Park shall bear the burden of proving that this Consent Decree should be terminated and each Party shall bear its own costs.

XI. CONSENT TO ENTRY OF DECREE

30. Each of the parties consents to entry of this Decree, subject to the Court's approval of this Decree. The undersigned representatives of each party certify that they are fully authorized by the party to enter into the terms and conditions of this Decree and to execute and legally bind the represented parties to it. This Decree can be signed in counterparts.

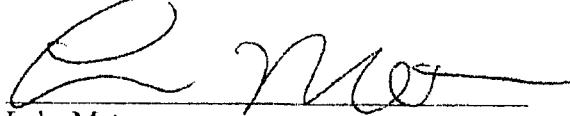
Judgment is hereby entered in accordance with this Consent Decree and Order this 29 day of April, 2009.



United States District Judge

AGREED AND CONSENTED TO:

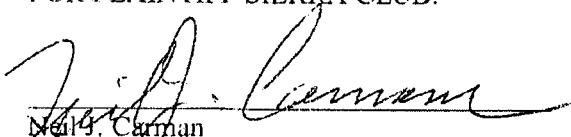
FOR PLAINTIFF ENVIRONMENT TEXAS CITIZEN LOBBY, INC.:



Date: 4/21/09

Luke Metzger
Director
Environment Texas
815 Brazos, Suite 600
Austin, Texas 78701

FOR PLAINTIFF SIERRA CLUB:



Date: 4/21/2009

Neil J. Carman
Clean Air Program Director
Lone Star Chapter of the Sierra Club
1202 San Antonio Street
Austin, Texas 78701

FOR DEFENDANTS DEER PARK REFINING LIMITED PARTNERSHIP, SHELL CHEMICAL LP, and SHELL OIL COMPANY:

Aamir Farid

Date: April 21 2009

Aamir Farid
General Manager Shell Deer Park Site
5900 Highway 225, Shell Deer Park Center Room 6036
Deer Park, TX 77536

Exhibit A
Coker Wet Gas Compressor Projects

Triconex anti-surge control system

Shell Deer Park will install a Triple Modular Redundant Triconex anti-surge control system for the coker wet gas compressor to improve the capability and robustness of compressor surge control. The system enables Shell to mitigate threats such as single transmitter failures, upstream single failures and lack of surge control back-up capability.

New or upgraded lube oil system

Shell Deer Park will replace or upgrade the lube/seal oil skid for the coker wet gas compressor from pneumatic local control to electronic transmitters and DCS control loops. Shell Deer Park will convert from positive displacement pumps to centrifugal pumps for the lube/seal oil system and revise the controls for the pumps.

Electromechanical exciter panel

The coker wet gas compressor currently has a synchronous motor with microprocessor based exciter control. This project will replace the microprocessor based control with an electromechanical synchronous motor control.

Exhibit B

Project 1 - School Bus Retrofit or Replacement Project

The Houston-Galveston Area Council (H-GAC) and the Area Emission Reduction Credit Organization (AERCO), upon receipt of funds paid to AERCO in the amount of \$3,600,000 pursuant to paragraph 19 of the Consent Decree entered in the matter of Environment Texas and Sierra Club v. Shell Oil Company, et al., will use those funds to purchase “clean fuel” technology buses or to retrofit/refurbish school district buses for school districts in the counties of Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty Montgomery, and Waller (the Houston-Galveston-Brazoria (HGB) region). The H-GAC and AERCO administer funds of this type and amount on a regular basis and are capable of managing and ensuring correct use of the funds. H-GAC and AERCO will administer the disbursement of funds consistent with the requirements for a Texas Commission on Environmental Quality approved supplemental environmental project. AERCO is a 501(c)(3) organization dedicated to administration of donations as well as Supplemental Environmental Project (SEP) funds for the HGB region.

The H-GAC Clean Fleets Initiative and AERCO Clean School Bus programs reduce emissions by replacing, repowering, and retrofitting older, less efficient vehicles with newer ones that burn fuel cleaner, resulting in fewer harmful emissions. The old buses will be permanently retired and only sold for scrap. Organizations interested in replacing school buses or other vehicles apply through the H-GAC and AERCO by submitting information on their current vehicle fleet, which is evaluated for potential nitrogen oxides (NOx) emission reductions and cost-effectiveness should the current vehicles be replaced with 2007-compliant vehicles.

Vehicles which meet the Clean School Bus cost-effectiveness criteria are eligible for grant funds up to \$150,000 per ton of nitrogen oxides reduced per year. Nitrogen oxides are the pollutants used to evaluate the vehicles because nitrogen oxides are a precursor to ozone. The HGB region has not attained the federal standard for ozone. However, most new equipment (retrofits or new engines) will reduce NOx and/or particulate matter (PM), both of which are health concerns. Organizations that would like to repower or replace their current vehicles must destroy the engine in their current vehicle once possession is taken of the new vehicle/engine.

In accordance with the consent decree, priority will be given to projects in eastern Harris County. School districts identified in this area are: Channelview Independent School District (ISD), Clear Creek ISD, Crosby ISD, Deer Park ISD, Galena Park ISD, Goose Creek ISD, LaPorte ISD, Pasadena ISD, Pearland ISD, and Sheldon ISD. Outreach will be conducted in order to alert these school districts to the opportunity. If no interest is expressed once priority school districts have been notified of the opportunity, funding will be opened for other school districts in the region.

H-GAC will submit a brief yearly report to the parties to the Consent Decree in order to outline progress with expenditure of the funds. This report will include any requested information that may be reasonably supplied.

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Project 2: **East Harris County Solar Energy Pilot Program**

I. Introduction

The Houston Advanced Research Center (HARC) will partner with either an Independent School District in East Harris County (such as Deer Park, Galena Park, Channelview, La Porte, Pasadena or Goose Creek) or Harris County to install on public buildings and test commercially available solar energy system(s) in East Harris County. The East Harris County Solar Energy Pilot Program will provide information that may be used to design a solar energy system that could be used as a template for similar buildings and structures based on lessons learned and return on investment.

The building block of any solar electric system is the solar cell. Solar cells convert sunlight into usable electricity without moving parts, noise or pollution. Solar cells are connected and encased in a protective envelope in a factory to form a solar module or panel. In the field, the solar modules are then connected and attached to a support structure on a facility's roof, ground or parking areas to form solar arrays. Several arrays comprise a solar electric system. Once installed and exposed to the sun, the solar electric system will produce direct current (DC) electricity - the same type of electricity stored in a battery. Since most facilities use alternating current (AC) electricity, an inverter is used to convert the DC power into AC power. The AC power then flows from the inverter to the facility to power electrical loads reducing the amount of power that is needed from the utility.

The East Harris County Solar Energy Pilot Program will demonstrate the viability of solar electric systems in this region and to collect, analyze and report data related to a particular solar energy system(s) that can be used to produce electricity in the Houston environment.

II. Organization's Background

The Houston Advanced Research Center (HARC) is a 501(c)(3) not-for-profit organization located in The Woodlands, Texas. HARC's mission is to move knowledge to action to improve human well-being and the environment. Founded in 1982, HARC has a staff of about 50 professionals that focus on several themes: air quality and climate, water and ecosystems, the built environment, and clean energy. Central to HARC's mission is its positioning as a "boundary organization" situated between producers of scientific knowledge (scientists, inventors and academicians) and users of that knowledge (NGOs, technology adopters, and policy makers).

III. East Harris County Solar Energy Pilot Program

The East Harris County Solar Energy Pilot Program has several key objectives:

- Design and install a solar system that complements the structure's management and sustainability plan.
- Provide a visible solar energy system that demonstrates how a solar energy system can be installed on an existing structure.
- Collect, interpret and report data that may be used to understand the cost-

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benefit relationship and the efficacy of a solar energy system in the Houston environment.

-- Provide information to architects, engineers and other stakeholders on the durability and performance of the solar energy system installed. Information may also be reported through HARC's web site.

A. Work plan – HARC will work with the building's owner and operator, and others, such as the Houston Architecture Foundation (HAF), and the American Institute of Architects (AIA) to develop the specifications for the solar system(s). This will ensure design considerations are appropriately communicated.

The three key tasks of the work plan are as follows:

1. ***Engineering/Design/Procurement/Construction/Installation.*** HARC will procure services from a company with appropriate expertise for the engineering, design, procurement, construction and installation of the solar system(s). HARC will work with the winning bid to design the system(s) to ensure that sufficient data may be obtained on the performance of the system(s). HARC will oversee the work performed by the contractor(s).
2. ***Testing.*** HARC will develop and implement a testing protocol for the solar energy system(s) being installed. If more than one system is installed the testing protocol will include a comparison between the systems. HARC will work with the contractor(s) during the development and implementation of the program to ensure that appropriate data is being collected, analyzed and reported.
3. ***Outreach.*** HARC will develop a case study to document the East Harris County Solar Energy Pilot Program. Information will be distributed through a website, printed materials, conferences, exhibits and interviews.

HARC will submit a brief yearly report to the parties to the Consent Decree in order to outline progress with expenditure of the funds. This report will include any requested information that may be reasonably supplied

B. Schedule – Work will commence as soon as funding of \$2,000,000 is received. The goal is to have the solar panels installed and functional. The systems will be tested for 12 months after installation. HARC will generate reports and case studies after installation and throughout testing with a final report and case study at the conclusion of testing.

C. Staff – The Houston Advanced Research Center (HARC) will be awarded \$300,000 from the \$2,000,000 total project funding to provide engineering, research and administrative staffing resources for the East Harris County Solar Energy Pilot Program. HARC will provide an annual and final report to the grantor of this funding. HARC will not expend more than \$300,000 from the total project funding for its portion of the scope

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of work. HARC will administer the entire project and shall manage and disburse the project funds.

The three primary HARC staff members that will support the effort are:

Rich Haut, Senior Research Scientist at HARC will serve as Principal Investigator for the East Harris County Solar Energy Pilot Program. Haut currently serves as the Principal Investigator for various projects associated with securing energy for the future. A major effort is Solar Houston Initiative where HARC is partnering with the City of Houston on a program funded by the US Department of Energy to develop a plan to accelerate the market transformation of incorporating solar energy into the infrastructure of Houston. Haut is also a member of the US Green Building Council – National Research Committee where he represents all non-profits across the U.S. and on the board of the Research Partnership to Secure Energy for America, where he chairs the Environmental Committee. Dr. Haut's technical background includes a Masters degree and a Ph.D. in Engineering and over 25 years of industry experience.

David Hitchcock is an urban planner who directs energy and air quality projects at HARC. He will serve as a Project Advisor to develop case study information and prepare relevant materials for outreach, workshops and conferences. Hitchcock's current projects include studies of innovative transportation measures, development of a state hydrogen plan, and the Dallas urban heat island initiative. These projects are funded by various sources including EPA, DOE, and the State Energy Conservation Office. Hitchcock serves on the Board of Directors of the Cool Roof Rating Council, an independent non-profit organization that maintains a third-party rating system for cool roof technologies. His experience as a planner covers a wide range of urban and environmental issues ranging from inner-city redevelopment to federal energy policy. Hitchcock holds a Masters degree in regional and urban planning, and has been on HARC's research staff since 1989.

John Colvin, Research Scientist at HARC, will assist in overseeing the Solar System installer during the installation and commissioning and will work with the Principal Investigator during the testing phases. The testing phase includes work with the solar system installer to develop and implement a test protocol that accurately compares the two solar energy systems. The installation and commissioning phase will include drafting a report on comparing the issues associated with the installation and commissioning. Mr. Colvin's current research effort at HARC includes the development and patenting of high temperature heating devices utilizing carbon nanotube technology. He is a technical grant manager for the State of Texas' New Technology Research and Development Program. He has served as the Principal Investigator and engineer on projects such as Pratt Whitney RL-10 rocket engine flow bench and writer of the technical specification for the NASA Johnson Space Center's cryogenic refrigeration system.

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Project 3: *Ozone Theater – An Interactive Program to Educate Children about Air Pollution*

Galveston-Houston Association for Smog Prevention/ Mothers for Clean Air Program

Personnel

Matthew Tejada, Ph.D., executive director of GHASP, will be in charge of overseeing the administration and general operation of the program.

The Outreach Program Coordinator will be responsible for marketing the program to school districts and children's groups; organizing teacher workshops; working with UTMB Theater Outreach and Education (TOE) program on the middle school curriculum; scheduling schools and coordinating leaders to perform at assigned classrooms; and the follow-up with the pre- and post tests and evaluations from the teachers and any other duties necessary to carry out the program.

Project Description

Ozone Theater is an established interactive environmental program for children. *Ozone Theater* has already been proven to be an effective tool to teach children about air pollution and how to protect their health from exposure. This program was developed in partnership with the Theater Outreach and Education (TOE) program at the University of Texas Medical Branch's office of Community Outreach. The curriculum is aligned with Texas Essential Knowledge and Skills (TEKS) objectives in science, health, language arts and theater. To date, *Ozone Theater* has been provided to more than 8,000 students in the Houston area.

In 2007 *Ozone Theater* won a national Clean Air Excellence Award from the U.S. Environmental Protection Agency. The Clean Air Excellence Awards recognize programs, projects, or technologies that directly or indirectly reduce emissions of criteria pollutants or hazardous/ toxic air pollutants; are innovative and unique; provide a model for others to follow; and result in positive outcomes that are sustainable. Past funding, provided by the U.S. Environmental Protection Agency, AstraZeneca, and individual donors, has made it possible to offer *Ozone Theater* free of charge to schools throughout Harris and Galveston counties.

Due to the popularity and success of *Ozone Theater* for elementary students and the lack of a similar middle school program, GHASP is partnering with the University of Texas Medical Branch Institute for the Medical Humanities Theater Outreach and Education program (TOE) to develop a similar program for middle school students that will focus on a student's role as a consumer. The Environmental Institute of Houston (EIH) will lend its educational expertise, and a local middle school will provide initial feedback from students and teachers.

Ozone Theater for pre-Kindergarten to 5th Grade

Ozone Theater is an interactive and extensive approach to learning about air pollution that consists of an interactive educational module and an activity guide for use before and/or after the module. *Ozone Theater* is unique because it combines theatrical

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techniques with air pollution education and because it addresses the unique aspects of ozone pollution in the Houston region. In developing Ozone Theater for elementary-aged children, we used "still images," in which children do not move but hold a pose. In the preK-5 activity, the leader explains air pollution terms and builds the children's critical thinking skills by asking questions. This 30-minute program increased awareness and knowledge about air pollution and provided grades 3-5 the skills needed to make informed decisions and take responsible actions to protect their health. The program is a fun and creative way to teach kindergarten and elementary students about health and the environment. It is fast-paced educational theater that has students performing; shows them what causes air pollution; engages their minds and bodies in learning; teaches them how air pollution affects their health; and provides educators additional activities that expand upon the concepts.

Trained theater educators come to the classroom or group to lead students through *Ozone Theater*. Pre-tests and post-tests are administered to each participating class as well as teacher evaluations of the program to maintain effectiveness of the program material and the educators. After the students complete the program, an activity guide is left with the teacher, which includes hands-on scientific experiments and individual activities.

The curriculum, "Pesky Polluters," is for children in K through grade 2. Students learn about the air pollution in their community by acting out various sources, such as such as a bus, a plane, a ship, and a factory. In "Good Ozone, Bad Ozone," for grades 3-5, students learn about the EPA's Air Quality Index and act out activities that are safe during different ozone pollution levels.

Ozone Theater for Middle School Grades 6 - 8

An additional request for funding for the development and testing stages of the middle school program has been awarded by the US Environmental Protection Agency. This development project involves 1) develop the module, activity guide, and evaluation tools; 2) solicit feedback from middle school students and teachers; and 3) pilot test the module in three middle schools. Our objectives are to raise students' awareness of local air quality and to teach them how to take personal responsibility for responding to unhealthy levels of outdoor air pollution. This project will promote environmental stewardship in middle school students by increasing their awareness of local air pollution issues and by teaching them how to take personal responsibility for actions that affect their health and their environment.

GHASP will manage the project and will conduct it in partnership with the TOE. During this development phase, we will be working with approximately ten teachers and 100 students in grades 6-8 to ensure that our final product meets the needs of our audience. Based on the overwhelming success of our preK-5 *Ozone Theater* program, we anticipate that this proposal will allow us to complete the first two stages 1) research and development and 2) pilot testing and the rewriting in one year. This should launch us into Stage 3, marketing and implementation, by the beginning of the second year.

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The design of this program uses a variety of different learning styles by introducing the students to new concepts and breaking students into small groups. In this approach, the students interact with their peers and act out ways to solve an environmental health problem in their own language. They then present solutions to each other where they can view and critique other plausible solutions to the same challenge. The plan is to promote the middle school module to teachers, schools, and districts to reach students from a wide spectrum of socio-economic levels.

Training Workshops

GHASP will host biannual educational workshops in environmental theater for new and current theater educators to keep them current on air pollution issues and the health effects, learn techniques to keep the educational material engaging and to maintain a high level of motivation for the theater educators.

Outcomes – Benefits for program participants both during and after participation

Children are more at risk from the health effects of air pollution for several reasons: children spend more time outside than adults; when they are outside they are more active than adults; they breathe more air per pound of body weight; their lungs are still developing; and they have immature immune systems. There are very few educational programs about air pollution school students, and none of them address health effects. The advantage of using theater as an educational tool is that it is exciting for students, they are stimulated to learn, and theater makes more difficult concepts easier to understand.

The immediate benefits for the students who experience Ozone Theater are that they

- 1) are introduced to the basics of air pollution in their community as a health concern;
- 2) learn that they are at an increased health risk; and
- 3) learn that there are actions they can take to limit their exposure to air pollution.

The long term benefits are to instill children environmental stewardship by increasing their awareness of local air pollution issues and by teaching them how to take personal responsibility for actions that affect their health and their environment. But beyond educating the children, we believe that parents and siblings will also become aware of the health consequences of air pollution and learn how to self-protect.

Indicators – Observable and measurable changes

The primary and immediate indicators will be the results of the pre- and post tests, administered to the students. These results are not only used as tools for evaluating the effectiveness of the program but clearly indicate the progressive learning of science and health concepts in the lower grade levels. We will also be keeping track of the number of students who participate in the theater to chart the course of expansion.

The additional reinforcement of the Ozone Theater flags, given to schools that have three or more classes participate at grade 3 and above, are used to show the current area ozone conditions. This addition to the theater program helps students share the lessons they learn to the entire student body and becomes a part of the school's tradition.

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The intermediate indicator we will use is to track the number of schools and school districts which utilize Ozone Theater to teach students about air pollution and how to limit their exposure over the course of the first two years.

As the program becomes part of school district's curriculum, long term benefits become achievable. In the third year we will track the number of school districts that retain Ozone Theater as part of their regular curriculum.

Annual Reports

On the first anniversary of receiving the \$200,000 grant pursuant to the Consent Decree entered in Environment Texas and Sierra Club v. Shell Oil Company, et al., and on each anniversary thereafter until the funds are expended, GHASP shall certify in writing to the parties to the Consent Decree that the funds were used in the manner proposed. GHASP will submit a brief yearly report to the parties to the Consent Decree in order to outline progress with expenditure of the funds. This report will include any requested information that may be reasonably supplied.

Budget for Three Years - \$200,000

- Ozone Theater - Elementary School

Ozone Theater performed for *1500 elementary classes* K to 5th grade in the Harris and Galveston counties, approximately *30,000 elementary students*, grades K to 5th grade over a three year period, which includes instruction, educational materials, pre and post tests, ozone flags, and evaluations of the course and theater leader. Cost at \$3.65 per student.

- Ozone Theater - Grades 6-8

After completing the development of the middle school curriculum and pilot test funded by the EPA grant, implement and expand the new program to *300 middle school classrooms*, which includes approximately *9000 students*. Cost at \$3.65 per student.

- Workshops

Two theater educator training workshops per year (6 total) for continuing education in environmental theater.

- Anticipated Personnel

Part-time Ozone Theater Coordinator
Project Manager
Support Staff
Theater Educators